

# CERTIFICATE OF CONFORMITY



- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM17US0030X
- Equipment:** MODEL 5900 RADAR LEVEL GAUGE  
**(Type Reference and Name)**
- Name of Listing Company:** Rosemount Tank Radar AB
- Address of Listing Company:** Layoutvägen 1  
Mölnlycke, 43533  
Sweden
- The examination and test results are recorded in confidential report number:  
  
3035466 dated 10<sup>th</sup> February 2010
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:  
  
FM Class 3600:2011, FM Class 3610:2010, FM Class 3810:2005,  
ANSI/ISA 60079-0:2013, ANSI/ISA 60079-11:2013; ANSI/ISA 60079-26:2011  
ANSI/NEMA 250:2003, ANSI/IEC 60529:2004
- If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
- This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
- Equipment Ratings:**  
  
Intrinsically Safe (Entity) for use in Class I, Division 1, Groups A, B, C and D; Temperature Class T4  
Ta = -50°C to +80°C in accordance with Control Drawing No.9240040-917;  
Intrinsically safe (Entity) for use in Class I, Zone 0/1, AEx ia IIC T4 Ta = -50°C to +80°C; in accordance with Control Drawing No. 9240040-917

## Certificate issued by:

J. E. Marquedant  
Manager, Electrical Systems

9 February 2017

Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

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# SCHEDULE



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Fieldbus Intrinsically Safe Concept (FISCO) for use in Class I, Division 1, Groups A, B, C and D; Temperature Class T4 Ta = -50°C to +80°C in accordance with Control Drawing No. 9240040-917  
Fieldbus Intrinsically Safe Concept (FISCO) for use in Class I, Zone 0/1, AEx ia IIC T4 Ta = -50°C to +80°C; in accordance with Control Drawing No. 9240040-917  
Dust-Ignitionproof for use in Class II and III, Division 1, Groups E, F and G; Temperature Class T5 Ta = -50°C to +80°C; Hazardous (Classified) Locations; indoor and outdoor, Type 4X; IP66; IP67.

11. The marking of the equipment shall include:

FISCO FIELD DEVICE AND ENTITY  
IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G  
CL I, Zone 0/1 AEx ia IIC  
DIP CL II/III, DIV 1, GP E, F, G  
TEMP CODE T4  
INSTALL PER CTRL DWG 9240040-917  
AMB. TEMP. LIMITS -50°C to +80°C  
ENCL, TYPE 4X, IP66, IP67

12. **Description of Equipment:**

The Model 5900 Radar Level Gauge is a continuous level transmitter that uses a microwave signal to measure the level of a process liquid or solid.

The circuitry of the Model 5900 Radar Level Gauge circuitry is contained on four printed circuit boards and housed within a Type 4X; IP66; IP67 housing.

The Model 5900 Radar Level Gauges uses an antenna for transmission of the signal. The maximum process pressure rating (MWPR) is specified to be 40Bar (581psi) and 55Bar (798psi), respectively, for LPG-LNG antenna and Cone Quartz antenna. The maximum process pressure rating (MWPR) is specified to be 20Bar (290psi) or less for other antennas.

The Model 5900 Radar Level Gauge housing is constructed of aluminum alloy 360 or stainless steel 316. The housing is a two compartment housing separated with a dividing wall with a feed-through employed for power and signal routing. A thread on cover encloses the terminal while a flat cover is bolted to the electronics compartment. The terminal compartment, has two, 1/2-14 NPT, conduit entries for field wiring purposes. Exiting the electronics compartment is the connection for radar probe assemblies.

The Model 5900 Radar Level Gauges have an ambient operating temperature range of -50°C to +80°C.

**5900abcdefghijklmno. Radar Level Gauge.**

Entity Parameters:

Vmax = 30V, Imax = 300mA, Pi = 1.3W, Ci = 1.1nF, Li = 1.5µH.

FISCO Parameters:

Vmax = 17.5V, Imax = 380mA, Pi = 5.32W, Ci = 1.1nF, Li = 1.5µH.

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- a = Performance: Any two characters.
- b = Safety Certification: Any single character.
- c = Redundancy: 2, F, 1 or Z.
- d = Communication: F or Z.
- e = Certification: I5, KA, KD, KE or ZZ.
- f = Custody Transfer Type Approval: Any single character.
- g = Level Measurement: Any single character.
- h = Housing: A, S or Z.
- i = Cable/Conduit Connections: 1, 2, G, E, M or Z.

|                       |                                      |          |                      |                                      |  |  |  |  |    |
|-----------------------|--------------------------------------|----------|----------------------|--------------------------------------|--|--|--|--|----|
| j = Antenna:          | 1A                                   | 1P       | 1H                   | G1 or G2                             | 1C   | 1F   | 11   | 12   | ZZ |
| k = Antenna Size:     | 5, 6, 8, A or B                      | F or X   | 8 or X               | A, B, D or X                         | 3, 4, 6, 8, A or X   | 4, 6, 8, A or X  | 2, 0, 3, 4 or X                                      | 3, 4, 6, 8 or X  | Z  |
| l = Antenna Material: | S                                    | S        | S                    | S                                    | S, H, T, M or Y  | S  | S  | S  | Z  |
| m = Tank Seal:        | FF or HH                             | PF       | PV                   | QA                                   | PV, PK, QV or QK   | PV, PK, QV or QK   | PV, PK, QV or QK                                     | PV, PK, QV or QK   | ZZ |
| n = Tank Connection:  | 5A, 6A, 8A, AA, BA, KA, LA, MB or XX | WE or CL | 8A, 8Z, LA, LZ or XX | 4A, 4B, 4C, 6A, 6B, 6C, 8A, 8B or XX | 3A, 3B, 4A, 4B, 6A, 6B, 8A, 8B, AA, BA, IA, IB, JA, JB, KA, KB, LA, LB, 00 or XX | 4A, 6A, 8A, AA, 4X, 6X, 8X, AX, JA, KA, LB, MB, JX, KX, LX, MX, 00 or XX | 2A, 2B, 3A, 3B, 4A, 4B, HB, IA, IB, JA, JB, 00 or XX | 3A, 3B, 4A, 4B, 6A, 6B, 8A, 8B, IA, IB, JA, JB, KA, KB, LA, LB, 00 or XX | ZZ |
| o = Special:          | 0, C or X                            | 0 or X   | 0 or X               | 0, V or X                            | 0, 1, 2, 3 or X  | 0 or X   | 1 or X   | 0, 1, 2, 3, 4 or X   | Z  |

**13. Specific Conditions of Use:**

1. Parabolic and Array antennas with plastic surfaces and the surface of the painted housing may, under certain extreme conditions, generate an ignition-capable level of electrostatic. Appropriate measures must be taken to prevent electrostatic discharge.
2. \*Class I, Zone 0/1 notation: For installation in Zone classified locations, the Rosemount 5900 Radar Level Gauge was evaluated so that an [ib] associated apparatus can connect to it restricting the installation of the electronics to a Zone 1 location while still allowing the antenna to enter a Zone 0 location.

**14. Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

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15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

| Date                           | Description   |
|--------------------------------|---|
| 10 <sup>th</sup> February 2010 | Original Issue.   |
| 9 <sup>th</sup> February 2017  | <u>Supplement 2:</u><br>Report Reference: – RR208087 dated 9 <sup>th</sup> February 2017<br>Description of the Change:<br><ol style="list-style-type: none"><li>1. Corrected drawing numbers in the CDL.</li><li>2. Concerted to new certificate format</li></ol> |

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